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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/014,297	01/27/98	BROWN F	LI30-001

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ART UNIT	**PAPER NUMBER**
2763	12

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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No. 09/014,297	Applicant(s) BROWN, FRED A.	
	Examiner Kyle J. Choi	Art Unit 2763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

1)☒ Responsive to communication(s) filed on *12 May 2000* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a)☐ All b)☐ Some * c)☐ None of the CERTIFIED copies of the priority documents have been:

1.☐ received.

2.☐ received in Application No. (Series Code / Serial Number) _____ .

3.☐ received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

Attachment(s)

15)☐ Notice of References Cited (PTO-892)
16)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
17)☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
18)☐ Interview Summary (PTO-413) Paper No(s). _____ .
19)☐ Notice of Informal Patent Application (PTO-152)
20)☐ Other: .

DETAILED ACTION

Continued Prosecution Application

1. The request filed on May 12, 2000 for a Continued Prosecution Application (CPA) under 37 CFR 1.53(d) based on parent Application No. 09/014,297 is acceptable and a CPA has been established. An action on the CPA follows.

2. The following is a **Final** Office Action in response to communication received on May 12, 2000 requesting for a reconsideration of the above-identified application. No amendments have been made to the claims. Claims 1-20 are now pending in this application.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

4. Claims 1-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Thompson et al.

Thompson et al. (US Pat. No. 5,574,841) discloses an apparatus and method for designing and maintaining power transmission lines. The system is a collection of computer programs that allow a designer to design a power line from scratch or perform analysis on already existing power lines for operational parameters such as transmission line sag due to environmental conditions, aging, etc. including modeling of the power lines and modifications of the designed/existing power line models to analyze and verify design criteria (see at least col. 3, lns. 17-20, 35-37; col. 4, lns. 15-19, 41-42, 54-58). Thompson et al. also teaches using/modeling usage of jumpers, i.e., clamps, (col. 7, lns. 5-6) and the ability to iterate design analysis so that all design criteria are satisfied, i.e., optimization (col. 7, lns. 45-48; col. 19, lns. 42-44). Furthermore, the conductors are not only modeled based on existing operational conditions, but also under extreme conditions to predict its performance (col. 20, lns. 42-44).

As to the identifying of the "critical span", the specification of the present invention describes a "critical span" as the span that needs to be altered to be re-rated, i.e., the span that is under analysis. Such "critical span" is inherently taught in Thompson et al. as the span of transmission line being redesigned and analyzed for conformity to design

rules. The following is a more detailed discussion with a break down of specific claims considered individually.

(Claim 1): Independent claim 1 recites the steps of providing a conductor, supporting the conductor, creating a model of the supported conductor, identifying a critical span of the modeled conductor, altering the modeled conductor, and analyzing the altered model of the conductor.

Thompson et al. teaches a system and method for designing and maintaining a power line system. As admitted by the applicant, the Thompson et al. system is used to design an initial power line system from scratch, all within a computer-modeled environment. It is inherent that after the designing step is complete, the power lines are built based on the design. After all, what is the point of designing something if it is not going to be built. This constitutes the "providing" and the "supporting" steps recited in claim 1. Thompson's system also includes a "Sag & Tension" program. Thompson teaches that the "Sag & Tension" program is used for routine maintenance. (see col. 20, line 29). During the routine maintenance, the actual sag and tension are not directly measured. Rather, the connection points are entered including the environmental conditions and the conductor's state is then calculated based on

these information (i.e., the existing conductor is modeled). This "modeled" conductor can then be analyzed under virtual extreme conditions. (see col. 20, line 42). Furthermore, Thompson's system is an integrated "total system" (e.g., col. 19, line 3) meaning that each module can be used to process the model generated in another module. Hence, once a model of an existing conductor is generated as in the step above, Thompson's CAD system can be used to make alterations to the modeled conductor including analysis of the performance of the modeled conductor under different environmental conditions. This constitutes the "modeling", "identifying", "altering", and "analyzing" steps of claim 1. Hence, Thompson et al. anticipates claim 1.

(Claim 9): Independent claim 9 recites the step of providing a conductor, supporting the conductors, altering the conductors including removing a portion and adjusting the clamps.

This claim is devoid of any modeling step. Hence, the steps recited in claim 9 is a method of stringing a conductor between supporting structures manually by trial and error, a method notoriously well known and routinely done in the art. That is, a technician strings a conductor between two support structures using clamps - i.e., the "providing" and "supporting"

steps. Once finished, the technician measures the clearing height typically by a surveying instrument and finds out the conductor is too long. Hence, the technician cuts the conductor to an adjusted length - i.e., the "altering" step and re-clamps the shortened conductor. Although these steps are not specifically taught by Thompson, the recited method is performed by every technician who strings power lines. Since Thompson teaches a method of designing power lines to be built, the step of building the designed power line is considered inherent.

(Claim 14): Independent claim 14 recites the step of providing a conductor, creating a model of the conductor, first analyzing the modeled conductor under increased operating conditions, identifying a critical span, altering the modeled conductor, and analyzing the altered model of the conductor.

This claim, as recited, is devoid of any steps to actually "construct" a conductor. Rather, the "providing" step is taken merely to "provide" a conductor to be modeled in the "modeling" step. Thompson's system uses a library of modeled conductors with different characteristics. For this database of modeled conductors to exist, it is inherent that different types of conductors must have been "provided" for the modeling to have taken place. Hence, Thompson anticipates these steps. Thompson

also teaches subjecting the conductors to different environmental conditions using the "conductor program". (see at least col. 17, lines 20-30). Since Thompson's system employs a CAD system in designing the power lines, it then follows that different lengths, materials, etc. can be used based on the analysis of the operating conditions to adjust for alteration of design. Furthermore, the same analysis method can be used for the new models. Hence, claim 14 is anticipated by Thompson et al.

Turning now to the dependent claims:

(Claim 2): Claim 2 recites analyzing the modeled conductor under increased operating conditions. This feature has been discussed above with regard to claim 14. That is, Thompson teaches simulating the modeled conductor under various environmental conditions including maximum and minimum temperatures. (see col. 17, lines 20-25).

(Claim 3): Claim 3 recites supporting the conductor using a plurality of clamps. It is notoriously well known to use clamps to support the cables and since building the designed power line is inherent to Thompson, using clamps is also inherent and contemplated by the Thompson reference. Indeed, the design

costing/distribution program is taught to include calculation of cost of all the materials, time, and fittings for building the designed power line.

(Claim 4): Claim 4 recites removing at least a portion of the modeled conductor and adjusting the position of the clamps. As explained above, Thompson utilizes a CAD program for designing and modifying the design. This would inherently include allowing the user to shorten or lengthen the conductor based on the simulation and position of the clamps would logically have to be adjusted based on the modified conductor.

(Claim 5): Claim 5 recites identifying another "critical span". As discussed previously, a "critical span" is merely the portion of the conductor under analysis. Hence, Thompson teaches the step of "identifying" another critical span - i.e., another conductor under analysis.

(Claim 6): Claim 6 recites repeating the previous steps. Again, repeating the same steps of analysis of another conductor on another portion of the power line is inherent in Thompson since any user using Thompson's system would repeat until all the power lines have been designed and verified.

(Claim 7): Claim 7 is the same recitation as that of claim 4 above.

(Claim 8): Claim 8 recites using a computer. The system of Thompson uses a computer.

Claims 10-13, 15-20 are similar recitations of claims 2-8 but depending from corresponding independent claims 9 or 14. Since independent claims 9 and 14 and dependent claims 2-8 are shown to be taught by Thompson above, the combination of dependent claims 10-13, 15-20 with their respective independent claims 9 and 14 are also shown by Thompson. Hence, all claims, AS RECITED, are taught by Thompson et al.

Response to Arguments

5. Applicant's arguments filed April 18, 2000 have been fully considered but they are not persuasive for the following reasons.

6. Applicant contends that the Thompson et al. (US Pat. No. 5,574,841) does not anticipate the claims of the present application because various features recited in the claims are not taught. On the contrary, Thompson et al. teaches all the

limitation as recited in the claims for the reasons described below.

7. With regard to claim 1, the main feature allegedly not taught by Thompson et al. is that the system of Thompson et al. is only for generating an initial design of a power line and fails to teach modeling a design structure following supporting of the conductor. Moreover, it is alleged that Thompson et al. does not teach "increasing" the power handling capability of a power line.

8. Turning first to the language of the claims, claim 1 recites, in part, the steps of:

> ...providing a conductor configured to transmit energy intermediate plural locations;
>
> supporting the conductor at a plurality of positions intermediate the locations, the supporting at a plurality of positions defining a plurality of spans within the conductor....

Thompson et al. specifically teaches that "[O]nce the support structures have been planted, the conductors may be modelled." (col. 4, lns. 41-42). Moreover, the arguments in the above-identified communication does not provide what the novelty of the claimed invention is, but rather discusses at length the teachings of Thompson et al. and how it allegedly does not teach

modeling the power line after the "supporting" step. However, it is clear from the above passage that Thompson et al. teaches modeling a power line after it is planted (i.e., supported).

9. Perhaps the ambiguity is arising from the scope of the claim language. During the telephonic interview on March 8, 2000 with the applicant's representative, it was suggested that the difference between claim 1 and the teachings of Thompson et al. is that Thompson et al. does not teach modeling and already existing (i.e., built) power line. However, the language of claim 1 does not suggest nor support that the power line being modeled is an already existing power line. It merely recites that the conductor is "supported" before being modeled, and Thompson et al. clearly teaches "planting" the power line before modeling is performed.

10. This leads to and seems to support the second element of the argument that Thompson et al. only teaches a system for generating an "initial design" of a power line. However, it is respectfully submitted that applicant's interpretation of "initial design" as taught by Thompson et al. is slightly misplaced. It is true that Thompson's system and method can be used to generate a "new" power line that is not currently in existence, i.e., applicant's interpretation of an "initial" power line. However, Thompson's characterization of "initial"

design of a power line is not necessarily a non-existing power line, but rather a "first" draft of a design before undergoing further modifications, i.e., an "initial" design before editing the design based on optimization of the components, for example. (col. 3, lns. 17-19; col. 7, lns. 46-48; col. 19, lns. 35-36, 42-44). Indeed, Thompson et al. teaches that existing power lines can be modeled and re-designed, for example, for re-stringing the conductors on already existing power lines, trimming the conductors to reduce sag, etc. (col. 2, lns. 40-48; col. 3, lns. 21-30, 50-61; col. 4, lns. 15-19; col. 5, lns. 35-42; col. 6, lns. 22-25, 54-60; col. 11, lns. 47-58; col. 12, lns. 5-7; col. 12, 23-26, 40-44; col. 13, lns. 48-53; col. 16, lns. 7-8, 25-28; col. 17, lns. 27; col. 20, lns. 29-64). These passages teach that already existing power lines are surveyed and put into the database (i.e., modeled). Moreover, Thompson et al. does not teach that these modeled power lines are not precluded from being operated on in the design modules. Rather, Thompson et al. teaches that the sag/tension calculations can be performed on these modeled power lines and can be replaced with new conductors to determine the change in sag/tension. These are separate and apart from the maintenance/monitoring module capabilities.

11. This leads to the last prong of the argument that Thompson et al. fails to teach "increasing" the power handling capability of a power line. Firstly, the method of claim 1 recites the step of providing a conductor, supporting the conductor, modeling the supported conductor, identifying the critical span of the conductor, altering the modeled conductor, and analyzing the altered conductor. These steps are all taught in Thompson et al. as stated above. Hence, increasing the power handling capability is incidental to the method of Thompson et al. That is to say, if the recited method achieves a desired result (i.e., increasing the power capability of a power line), a reference that discloses the same method also achieves the desired result whether it specifically recites the achieved result. Moreover, power handling capability of a power line is mostly based on the characteristic of the conductor. Thompson's system and method allows the engineer to design a power line using different conductors, hence allowing the engineer to increase/decrease the power handling capability of the designed power line.

12. This line of reasoning is applied throughout the rest of the claims. In particular, claim 9 recites the steps of providing a conductor, supporting the conductor with a plurality

of clamps, altering the conductor including removing a potion and adjusting the clamp position.

13. Firstly, there is no recitation of a modeling step per se. Hence, this claim is broader than claim 1 in this respect and Thompson's design system and method applies if the recited steps are taught. As discussed above, Thompson et al. teaches adjusting the length and type of conductor of a power line to achieve a particular result. Although Thompson et al. does not specifically teach choosing a conductor based on power handling capability, it is inherent that a designer choose a specific design of a power line based on its power handling capability. Moreover, Thompson et al. teaches a database full of different conductors with different characteristics that can be swapped during the design stage.

14. Furthermore, claim 9 reads on the already performed trial-by-error process of adjusting power lines. That is to say, if a technician strings a conductor and finds that the line is too long thereby reducing the power capability due to an increase in resistance, for example, the technician would cut is shorter to increase the power capability.

15. As to the last independent claim 14, it recites similar steps of claim 1 with the exception of a supporting step. Hence, Thompson et al. anticipates these steps as described

above, and the "increasing" of power capabilities is inherent and incidental to the system and method of Thompson as explained above.

16. All the limitations of the dependent claims are taught in Thompson et al. as explained above.

Conclusion

17. No claims are allowed.

18. This is a CPA of applicant's earlier Application No. 09/014297. All claims are drawn to the same invention claimed in the earlier application. The claims could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the earlier application. In fact, an Advisory Office Action was sent on May 2, 2000 (paper no. 10) stating that the claims were still rejected under the art of record for the reasons set forth above.

19. Since no amendment was made to the claims and only a request for reconsideration was filed as a preliminary amendment, **THIS ACTION IS MADE FINAL** even though it is a first action in this case. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no, however, event will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

20. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 308-9051 (for formal communications intended for entry)

or:

(703) 308-1396 (informal or draft communications labeled "PROPOSED" or "DRAFT")

Hand delivered responses should be brought to Crystal Park 2, 2121 Crystal Drive, Arlington, VA., 6th floor receptionist.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kyle J.

Choi whose telephone number is (703)306-5845. The examiner can normally be reached on Monday-Friday, 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin J Teska can be reached on (703)305-9704. The fax phone numbers for the organization where this application or proceeding is assigned are (703)308-1396 for regular communications and (703)308-1396 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-3900.

KJC
May 21, 2000